Evaluating Substantial and Widespread Impacts: Private Sector Entities

Purpose

To provide automated versions of the worksheets in EPA's *Interim Economic Guidance for Water Quality Standards* (1995) that are used to evaluate substantial impacts to private sector entities, and consequent widespread economic and social impacts to surrounding communities.

Explanation of Tabs

Name	Description	Requires User Input?
Verify Project Costs	Summary of information used to evaluate pollution control projects and associated costs.	No
Inputs - Substantial Analysis	Numerical inputs that user must enter to complete the worksheets that evaluate substantial impact to the entity (Worksheets G-L), including project cost information and financial information of the discharger for which impacts are being analyzed.	Yes
Worksheets G - L	Equivalent to Worksheets G - L in EPA's *Interim Economic Guidance for Water Quality Standards* (1995)[1]	Yes, except Worksheet G
Financial Analysis Summary	Summary of financial metrics used to evaluate substantial impact to entity	Yes
Inputs - Widespread Analysis	Inputs that user must enter to complete Worksheet N, which evaluates widespread impact to the community surrounding the discharger	Yes
Worksheet N	Equivalent to Worksheet N in EPA's *Interim Economic Guidance for Water Quality Standards* (1995)[1]	No
Sample Financial Information	Contains financial information for an example mining company, used to populate 'Sample Inputs' sheet	No
Sample Inputs	Demonstrates how to fill in 'Inputs' sheet using a company's income statement and balance sheet	No

Instructions for Use
1. Verify pollution control project costs using information in the 'Verify Project Costs' tab and EPA's 1995 *Guidance.*
2. Enter project cost information and company financial information 'Inputs - Substantial Impact' tab (cells in **blue** require user input). This information is automatically distributed to the appropriate worksheets.
3. On Worksheets H-L, answer questions and select option buttons as directed (in cells highlighted in **blue**). This serves to clarify and explain information entered on 'Inputs - Substantial Impact' tab.
4. Use the four financial measures (summarized in 'Financial Analysis Summary' tab), along with answers to the questions provided by the user on the worksheets -- and any other information that may be relevant that is not included in the worksheets (as discussed in EPA's *Interim Economic Guidance for Water Quality Standards*) -- to assess whether adverse financial impact to the entity is substantial.
5. If financial impact to the entity is determined to be substantial, enter information on 'Inputs - Widespread Analysis' tab. These inputs are automatically transferred to Worksheet N. Use the answers on Worksheet N along with EPA's *Guidance* to assess whether economic and social impacts to the surrounding community could be widespread.
Note: All worksheets are sized to be printer-friendly.
Note: Tabs in **blue** require user input.
Comparison to Worksheets in EPA's 1995 *Interim Economic Guidance for Water Quality Standards*
The worksheets here mirror the worksheets in the guidance almost exactly, with the addition of automated calculations and transfer of values to other areas where the value is applied. The only substantive difference is that, while the *Guidance* vaguely asks the user to consider, for each metric, which year's value to use in the analysis, the worksheets here ask the user to definitively select which year's value is most appropriate. The selected value is then used where applicable in the remainder of the analysis.
These worksheets provide only some of the information needed to conduct a thorough analysis of potential substantial impacts to private sector entities, and consequent widespread economic and social impact to surrounding communities. These worksheets should be used in the context of the full *Guidance.* [1]
1. Available at http://water.epa.gov/scitech/swguidance/standards/economics/

3.1.a Verify Project Costs
The first step in the financial impact analysis is an evaluation of the proposed pollution control project. Private entities should consider a broad range of discharge management options including pollution prevention, end-of-pipe treatment, and upgrades or additions to existing treatment. Specific types of pollution prevention activities to be considered include:
• Change in Raw Materials;
• Substitute Process Chemicals;
• Change in Process;
• Water Recycling and Reuse; and
• Pretreatment Requirements.
Whatever the approach, the discharger must demonstrate that the proposed approach is the most appropriate means of meeting water quality standards and must document project cost estimates.

Company Name	

Project Information	
Capital costs to be financed	
Interest rate for financing	
Annual cost of operation and maintenance (including but not limited to monitoring, inspection, permitting fees, waste disposal charges, repair, administration and replacement)*	

Discharger Information			
Three most recently completed fiscal years (most recent first)			
Financial Information for Specified Fiscal Years			
Revenues			
Cost of goods sold (including the cost of materials, direct labor, indirect labor, rent and heat)			
Portion of corporate overhead assigned to the discharger (selling, general, administrative, interest, R&D expenses, and depreciation on common property)			
Net income after taxes			
Depreciation			
Current assets (the sum of inventories, prepaid expenses, and accounts receivable)			
Current liabilities (the sum of accounts payable, accrued expenses, taxes, and the current portion of long-term debt)			
Current debt			
Long-term debt			
Long-term liabilities (long-term debt such as bonds, debentures, and bank debt, and all other noncurrent liabilities such as deferred income taxes)			
Owner equity (the difference between total assets and total liabilities, including contributed or paid in capital and retained earnings)			

* For recurring costs that occur less frequently than once a year, pro rate the cost over the relevant number of years (e.g., for pumps replaced once every three years, include one-third of the cost in each year).

Worksheet G

Calculation of Total Annualized Project Costs

Capital costs to be financed	$0	(1)
Interest rate for financing	0%	(i)
Time period of financing (years)	10	(n)
Annualization factor = $i/((1+i)^n - 1) + i$	0.1000	(2)
Annualized capital cost [(1) × (2)]	$0	(3)
Annual cost of operation and maintenance (including but not limited to monitoring, inspection, permitting fees, waste disposal charges, repair, administration and replacement)*	$0	(4)
Total annual cost of pollution control project [(3) + (4)]	$0	(5)

* For recurring costs that occur less frequently than once a year, pro rate the cost over the relevant number of years (e.g., for pumps replaced once every three years, include one-third of the cost in each year).

Worksheet H

Calculation of Earnings Before Taxes
With and Without Pollution Control Project Costs

A. Earnings Without Pollution Control Project Costs

EBT = R - CGS - CO

Where:	EBT =	Earnings before taxes
	R =	Revenues
	CGS =	Cost of goods sold (including the cost of materials, direct labor, indirect labor, rent and heat)
	CO =	Portion of corporate overhead assigned to the discharger (selling, general, administrative, interest, R&D expenses, and depreciation on common property)

	Three Most Recently Completed Fiscal Years			
R	$0	$0	$0	(1)
CGS	$0	$0	$0	(2)
CO	$0	$0	$0	(3)
EBT [(1) - (2) - (3)]	$0	$0	$0	(4)

Is the most recent year typical of the three years?

- (selected) Yes, use .
- No, use . It is most typical of the analysis period.
- No, use . It is most typical of the analysis period.

Worksheet H, Continued

B. Earnings With Pollution Control Project Costs

EWPR = EBT - ACPR

Where:	EWPR =	Earnings with pollution control project costs
	EBT =	Earnings before taxes (4)
	ACPR =	Total annual costs of pollution control project [Worksheet G, (5)]

EBT (4)	$0	(5)
ACPR [Worksheet G, (5)]	$0	(6)
EWPR [(5) - (6)]	$0	(7)

Considerations: Is the discharger expected to have positive earnings after paying the annual cost of pollution control?

No

Additional comments

Worksheet I

Calculation of Profit Rates
With and Without Pollution Control Project Costs

A. Profit Rate Without Project Costs

$$PRT = EBT \div R$$

Where:	PRT =	Profit rate before taxes
	EBT =	Earnings before taxes
	R =	Revenues

	Three Most Recently Completed Fiscal Years			
EBT [Worksheet H, (4)]	$0	$0	$0	(1)
R [Worksheet H, (1)]	$0	$0	$0	(2)
PRT [(1)/(2)]	0.00	0.00	0.00	(3)

Considerations: How have profit rates changed over the three years?

How do these profit rates compare with the profit rates for this line of business?

Worksheet I, Continued

B. Profit Rate With Pollution Control Costs

PRPR = EWPR ÷ R

Where: PRPR = Profit rate with pollution control costs
EWPR = Before-tax earnings with pollution control costs
R = Revenues

EWPR [Worksheet H, (7)]	$0	(4)
R [Worksheet H, (1)]	$0	(5)
PRPR [(4)/(5)]	0.00	(6)

Considerations:

What is the percentage change in the profit rate due to pollution control costs? (PRPR - PRT)/PRT × 100
0%

How does the profit rate with pollution control compare to the profit rate of this line of business?

Worksheet J

Calculation of the Current Ratio

CR = CA ÷ CL

Where:	CR =	Current ratio
	CA =	Current assets (the sum of inventories, prepaid expenses, and accounts receivable)
	CL =	Current liabilities (the sum of accounts payable, accrued expenses, taxes, and the current portion of long-term debt)

	Three Most Recently Completed Fiscal Years			
CA	$0	$0	$0	(1)
CL	$0	$0	$0	(2)
CR [(1)/(2)]	0.00	0.00	0.00	(3)

Considerations:

Is the most recent year typical of the three years?

- (●) Yes, use .
- ( ) No, use . It is most typical of the analysis period.
- ( ) No, use . It is most typical of the analysis period.

Is the current ratio (3) greater than 2.0?

No

How does the current ratio (3) compare with the current ratios for other firms in this line of business?

Worksheet K

Calculation of Beaver's Ratio

BR = CF ÷ TD

Where: BR = Beaver's Ratio
CF = Cash flow
TD = Total debt

	Three Most Recently Completed Fiscal Years			
Cash flow:				
Net income after taxes	$0	$0	$0	(1)
Depreciation	$0	$0	$0	(2)
CF [(1) + (2)]	$0	$0	$0	(3)
Total debt:				
Current debt	$0	$0	$0	(4)
Long-term debt	$0	$0	$0	(5)
Total debt [(4) + (5)]	$0	$0	$0	(6)
Beaver's Ratio:				
BR [(3)/(6)]	0.00	0.00	0.00	(7)

Considerations:

Is the most recent year typical of the three years?

- (●) Yes, use .
- ( ) No, use . It is most typical of the analysis period.
- ( ) No, use . It is most typical of the analysis period.

Is the Beaver's Ratio for this discharger greater than 0.2?
No

Is the Beaver's Ratio for this discharger less than 0.15?
Yes

Is the Beaver's Ratio for this discharger between 0.2 and 0.15?
No

How does this ratio compare with the Beaver's Ratio for other firms in the same business?

Worksheet L

Debt to Equity Ratio

DER = LTL ÷ OE

Where:	DER =	Debt/equity ratio
	LTL =	Long-term liabilities (long-term debt such as bonds, debentures, and bank debt, and all other noncurrent liabilities such as deferred income taxes)
	OE =	Owner equity (the difference between total assets and total liabilities, including contributed or paid in capital and retained earnings)

	Three Most Recently Completed Fiscal Years			
LTL	$0	$0	$0	(1)
OE	$0	$0	$0	(2)
DER [(1)/(2)]	0.00	0.00	0.00	(3)

Considerations:

Is the most recent year typical of the three years?

- ◉ Yes, use .
- ○ No, use . It is most typical of the analysis period.
- ○ No, use . It is most typical of the analysis period.

How does the debt to equity ratio (3) compare with the ratio for firms in the same business?

Entity Name	Annual Pollution Control Costs	Primary Measure		Secondary Measures		
		Profit Test		Current Ratio	Beaver's Ratio	Debt/Equity Ratio
		Without Pollution Controls	With Pollution Controls			
	$0	0.00	0.00	0.00	0.00	0.00
Industry Average	N/A		N/A			

Summarize and discuss company's financial circumstances with and without pollution controls.

Community Social and Economic Indicators	
Define the affected community in this case; what areas are included	
Current unemployment rate in affected community (if available)	
Current national unemployment rate	
Additional number of persons expected to collect unemployment in affected community due to compliance with water quality standards	
Current number of persons collecting unemployment in affected community	
Labor force in affected community	
Median household income in affected community	
Total number of households in affected community	
Percent of population below the poverty line in affected community	
Current expenditures on social services in affected community	
Expected expenditures on social services due to job losses in the affected community	
Current total tax revenues in the affected community	
Tax revenues paid by the private entity to the affected community	
Current statewide unemployment rate	
Additional number of persons expected to collect unemployment in the state due to compliance with water quality standards	
Current number of persons collecting unemployment in state	
Labor force in state	
Current expenditures on social services in state	
Expected statewide expenditures on social services due to job losses	

Worksheet N

Factors to Consider in Making a Determination of Widespread Social and Economic Impacts

Define the affected community in this case; what areas are included	0	(1)
Current unemployment rate in affected community (if available)	0.00%	(2)
Current national unemployment rate	0.00%	(3)
Additional number of persons expected to collect unemployment in affected community due to compliance with water quality standards	0	(4)
Expected unemployment rate in the affected community after compliance with water quality standards ([Current # of persons collecting unemployment in affected community + (4)]/labor force in affected community)	0.00%	(5)
Median household income in affected community	$0	(6)
Total number of households in affected community	0	(7)
Percent of population below the poverty line in affected community	0.00%	(8)
Current expenditures on social services in affected community	$0	(9)
Expected expenditures on social services due to job losses in the affected community	$0	(10)
Current total tax revenues in the affected community	$0	(11)
Tax revenues paid by the private entity to the affected community	$0	(12)
Tax revenues paid by the private entity as a percentage of the affected community's total tax revenues *	0.00%	(13)
Current statewide unemployment rate	0.00%	(14)
Additional number of persons expected to collect unemployment in the state due to compliance with water quality standards	0	(15)
Expected statewide unemployment rate, after compliance with water quality standards ([Current # of persons collecting unemployment in state + (15)]/labor force in state)	0.00%	(16)
Current expenditures on social services in state	$0	(17)
Expected statewide expenditures on social services due to job losses	$0	(18)

* In some cases, the affected community will include more than just the municipality in which the private entity is located. If so, the analysis should consider the private entity's tax revenues as a percentage of the tax revenues for only the municipality in which the entity is located.

EXAMPLE MINING COMPANY

CONSOLIDATED STATEMENTS OF OPERATIONS AND COMPREHENSIVE INCOME (LOSS)

(In thousands)

Year ended December 31,	2010	2009	2008
REVENUES			
Mine production	$ 381,044	$ 306,892	$ 360,364
PGM recycling	168,612	81,788	475,388
Other	6,222	5,752	19,980
Total revenues	555,878	394,432	855,732
COSTS AND EXPENSES			
Costs of metals sold:			
Mine production	229,986	209,140	283,793
PGM recycling	157,310	75,920	448,351
Other	6,379	5,741	19,892
Total costs of metals sold	393,675	290,801	752,036
Depletion, depreciation and amortization:			
Mine production	71,121	70,239	82,792
PGM recycling	472	178	192
Total depletion, depreciation and amortization	71,593	70,417	82,984
Total costs of revenues	465,268	361,218	835,020
Marketing	2,415	1,987	5,705
General and administrative	33,016	25,080	26,712
Restructuring	-	-	5,420
Losses on trade receivables and inventory purchases	595	1,051	29,409
Impairments of long-term investments and property, plant and equipment	-	119	70,628
(Gain)/loss on disposal of property, plant and equipment	(128)	689	196
Total costs and expenses	501,166	390,144	973,090
OPERATING INCOME (LOSS)	54,712	4,288	(117,358)
OTHER INCOME (EXPENSE)			
Other	(6)	79	144
Interest income	2,144	1,846	11,103
Interest expense	(6,536)	(6,801)	(9,718)
Foreign currency transation gain	51	-	-
Induced conversion loss	-	(8,097)	-
INCOME (LOSS) BEFORE INCOME TAX BENEFIT (PROVISION)	50,365	(8,685)	(115,829)
Income tax benefit (provision)	-	30	32
NET INCOME (LOSS)	50,365	(8,655)	(115,797)

Other comprehensive income (loss), net of tax	(762)	70	5,865
COMPREHENSIVE INCOME (LOSS)	$ 49,603	$ (8,585)	$ (109,932)

Note: Entries in **orange** are used in worksheet calculations (see 'Sample Inputs' tab)

EXAMPLE MINING COMPANY

CONSOLIDATED BALANCE SHEETS

(In thousands)

December 31,	**2010**	**2009**	**2008**
ASSETS			
Current assets			
Cash and cash equivalents	$ 19,363	$ 166,656	$ 161,795
Investments, at fair market value	188,988	34,515	18,994
Inventories	101,806	88,967	72,178
Trade receivables	7,380	2,073	2,369
Deferred income taxes	17,890	18,130	17,443
Other current assets	13,940	8,680	9,756
Total current assets	349,367	319,021	282,535
Propertly, plant and equipment, net	509,787	358,866	393,412
Restricted cash	38,070	38,045	35,595
Other noncurrent assets	12,246	9,263	11,487
Total assets	$ 909,470	$ 725,195	$ 723,029
LIABILITIES AND STOCKHOLDERS' EQUITY			
Current liabilities			
Accounts payable	$ 19,405	$ 8,901	$ 14,662
Accrued compensation and benefits	24,746	26,481	24,111
Property, production and franchise taxes payable	10,999	10,405	10,749
Current portion of long-term debt	-	-	97
Other current liabilities	3,052	3,689	5,489
Total current liabilities	58,202	49,476	55,108
Long-term debt	196,010	195,977	210,947
Deferred income taxes	53,859	18,130	17,443
Accrued workers compensation	7,155	4,737	6,761
Asset retirement obligation	6,747	6,209	7,028
Other noncurrent liabilities	4,425	3,855	4,448
Total liabilities	$ 326,398	$ 278,384	$ 301,735

Company Name	*EXAMPLE MINING COMPANY*

Project Information	
Capital costs to be financed	
Interest rate for financing	
Annual cost of operation and maintenance (including but not limited to monitoring,	

Note: Information below comes from links to income statement and balance sheet on 'Sample Financial Information' tab. These links demonstrate how to populate the 'Inputs' tab using a company's financial information.

Discharger Information			
Three most recently completed fiscal years (most recent first)	**2010**	**2009**	**2008**
Financial Information for Specified Fiscal Years			
Revenues	$555,878,000	$394,432,000	$855,732,000
Cost of goods sold (including the cost of materials, direct labor, indirect labor, rent and heat)	$393,675,000	$290,801,000	$752,036,000
Portion of corporate overhead assigned to the discharger (selling, general, administrative, interest, R&D expenses, and depreciation on common property)	$111,838,000	$112,316,000	$219,525,000
Net income after taxes	$50,365,000	-$8,655,000	-$115,797,000
Depreciation	$71,593,000	$70,417,000	$82,984,000
Current assets (the sum of inventories, prepaid expenses, and accounts receivable)	$349,367,000	$319,021,000	$282,535,000
Current liabilities (the sum of accounts payable, accrued expenses, taxes, and the current portion of long-term debt)	$58,202,000	$49,476,000	$55,108,000
Current debt	-	-	$97,000
Long-term debt	$196,010,000	$195,977,000	$210,947,000
Long-term liabilities (long-term debt such as bonds, debentures, and bank debt, and all other noncurrent liabilities such as deferred income taxes)	$268,196,000	$228,908,000	$246,627,000
Owner equity (the difference between total assets and total liabilities, including contributed or paid in capital and retained earnings)	$583,072,000	$446,811,000	$421,294,000

* For recurring costs that occur less frequently than once a year, pro rate the cost over the relevant number of years (e.g., for pumps replaced once every three years, include one-third of the cost in each year).